Public Meeting on Water Quality in the Hardware River

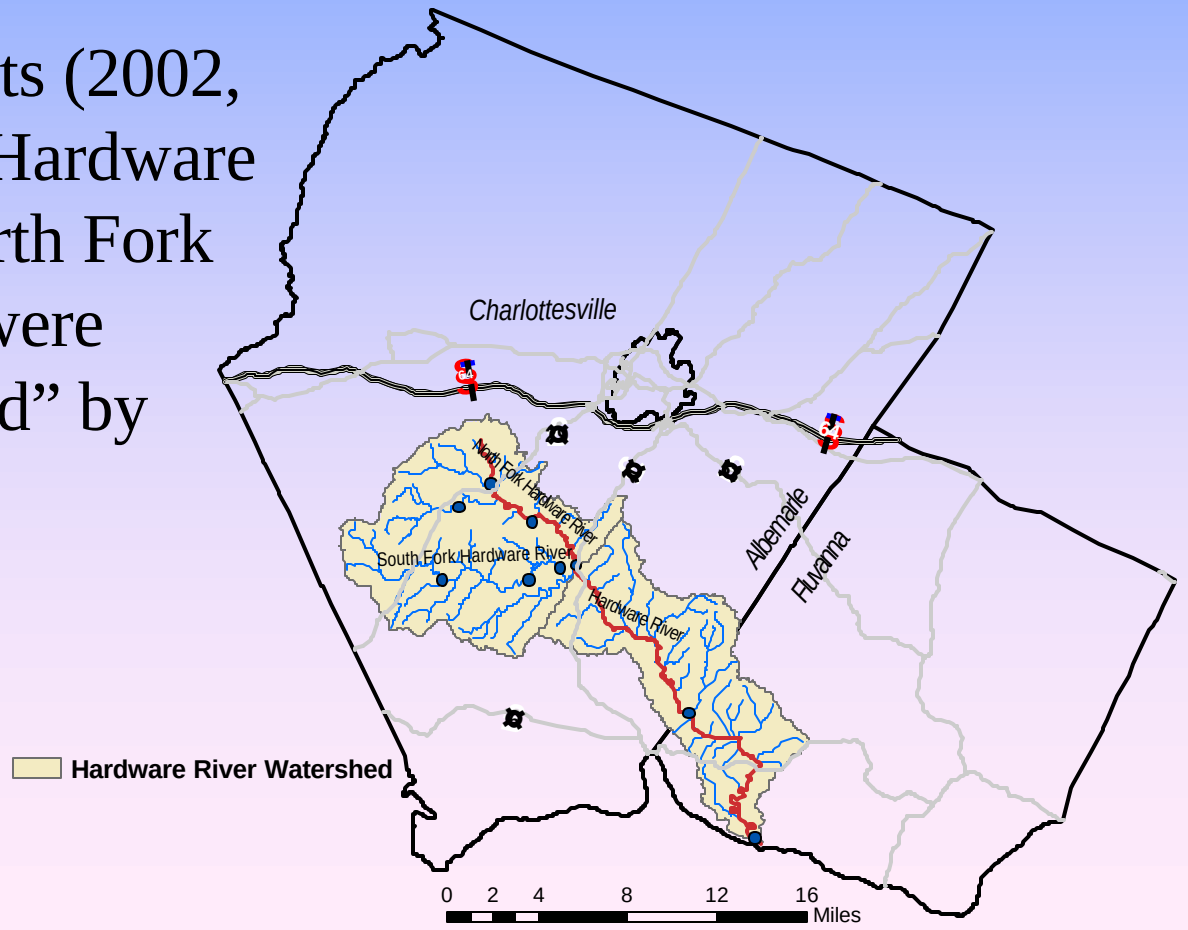
November 30, 2006

Why Are We Here?

- Learn about water quality in the Hardware River
- Explain efforts that the State is undertaking to improve and protect water quality
- Learn what you can do to help

What's the Status of the Hardware River?

- DEQ routinely monitors the quality of waters across the state and reports those results every 2 years
- In the last 3 reports (2002, 2004, 2006), the Hardware River and the North Fork Hardware River were listed as "impaired" by excess bacteria



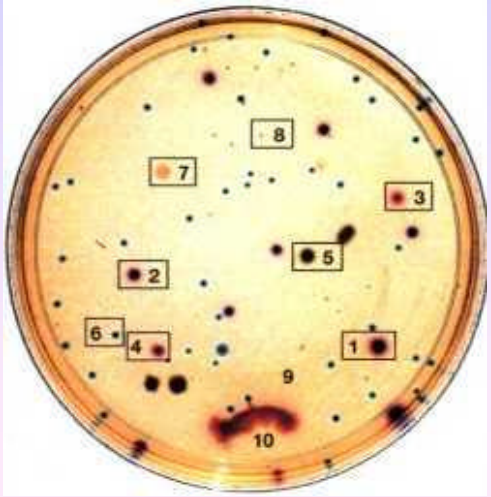
Bacterial Impairment

What does impaired mean?

- More than 10% of samples collected exceeded State standards for bacteria

What is the standard?

- No more than 400 fecal coliforms per 100ml water (~1/2 cup)
- No more than 235 E. coli/100ml
- Fecal coliforms and E. coli are indicators of human or animal waste



Why Are High Fecal Coliform Levels Bad?

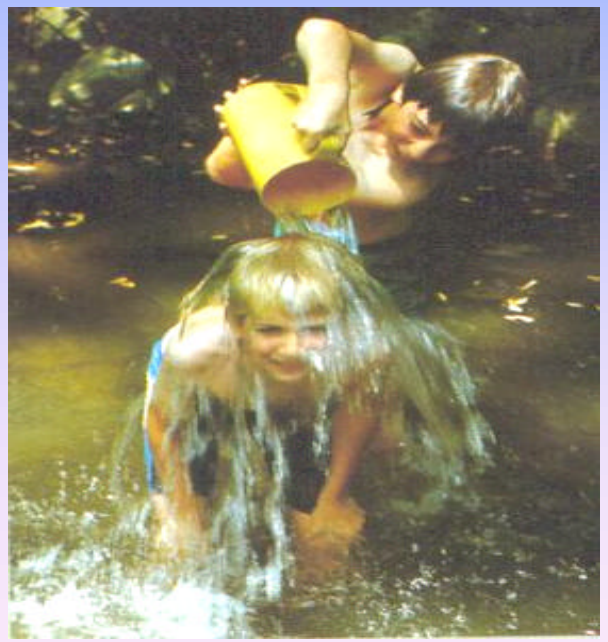
- Presence of fecal coliforms indicate that other disease causing bacteria may be present

Human Health Concern

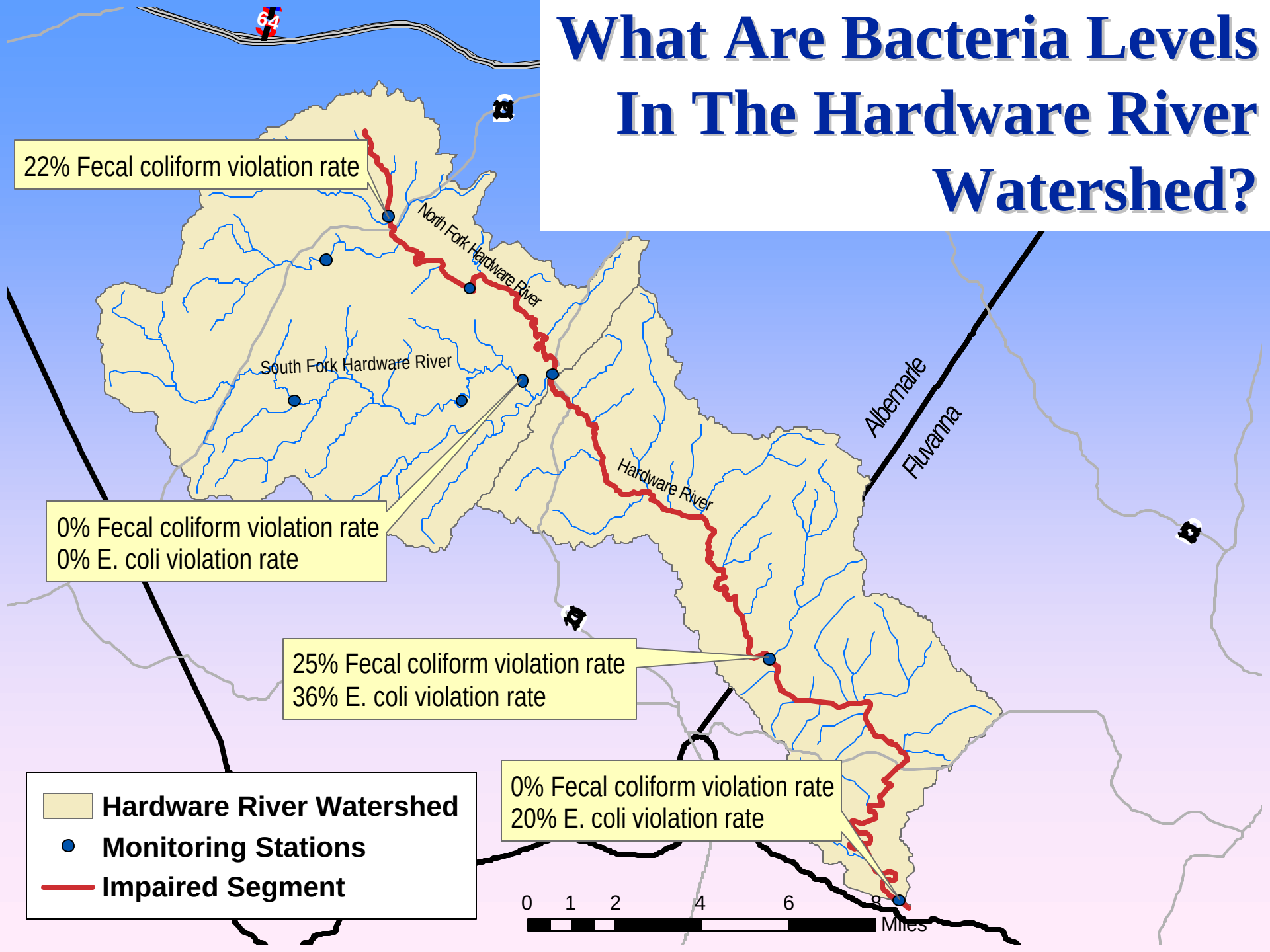
- Chance of gastrointestinal illness or infection during primary contact (e.g., water in mouth, nose, eyes, open wounds)

Other Concerns

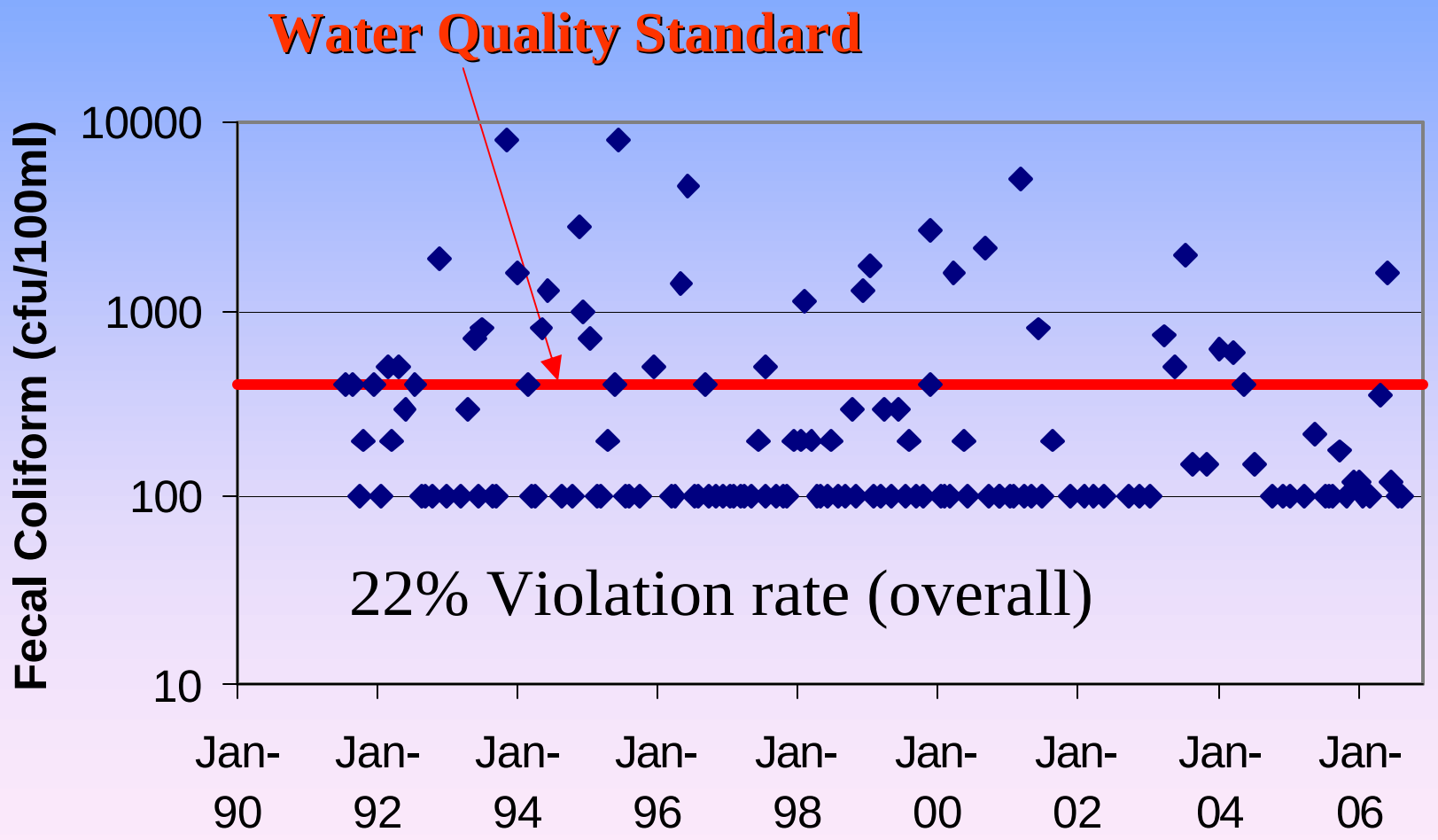
- Livestock health and weight gain



What Are Bacteria Levels In The Hardware River Watershed?



What Have Bacteria Levels Been Over Time?



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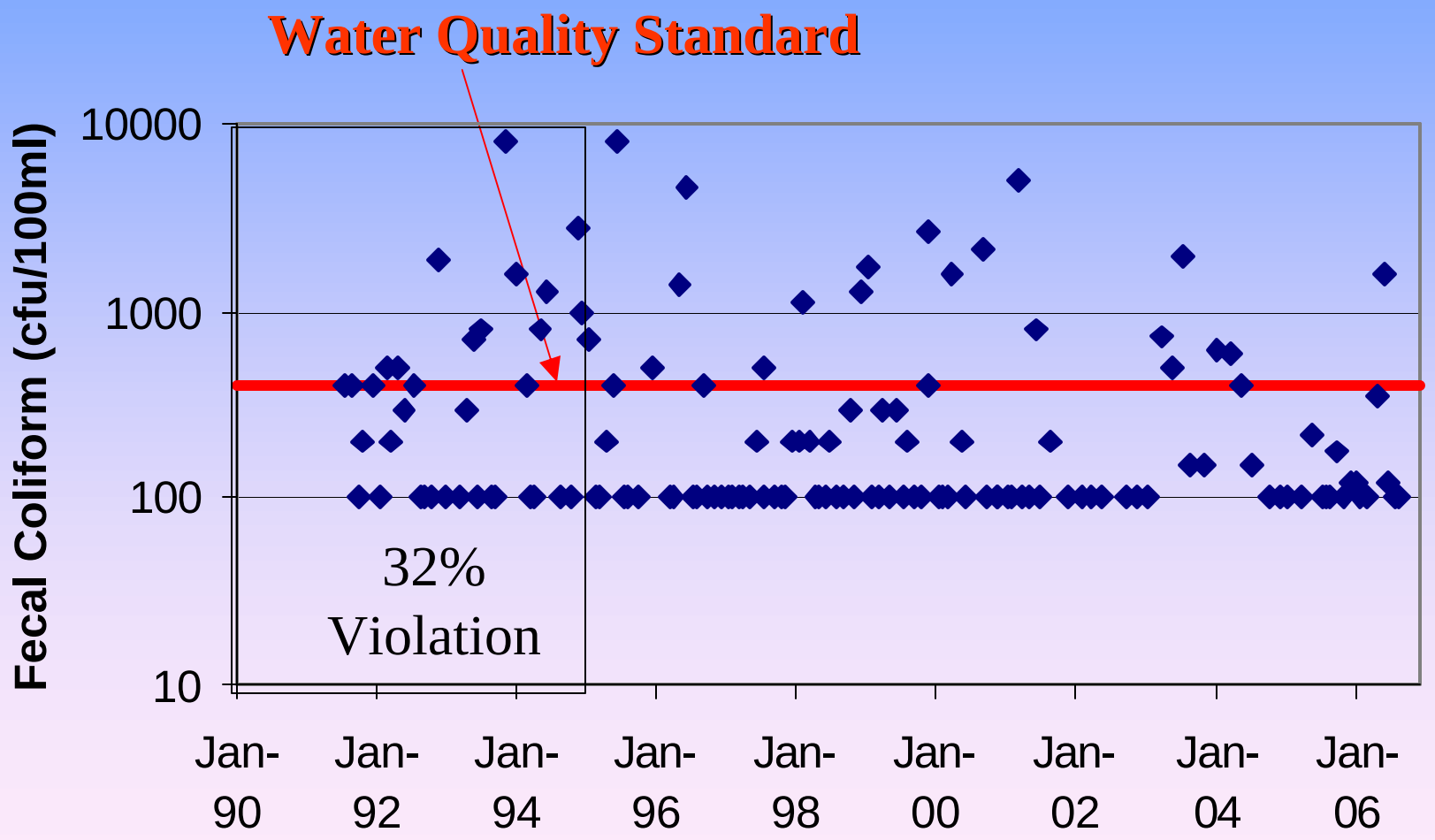

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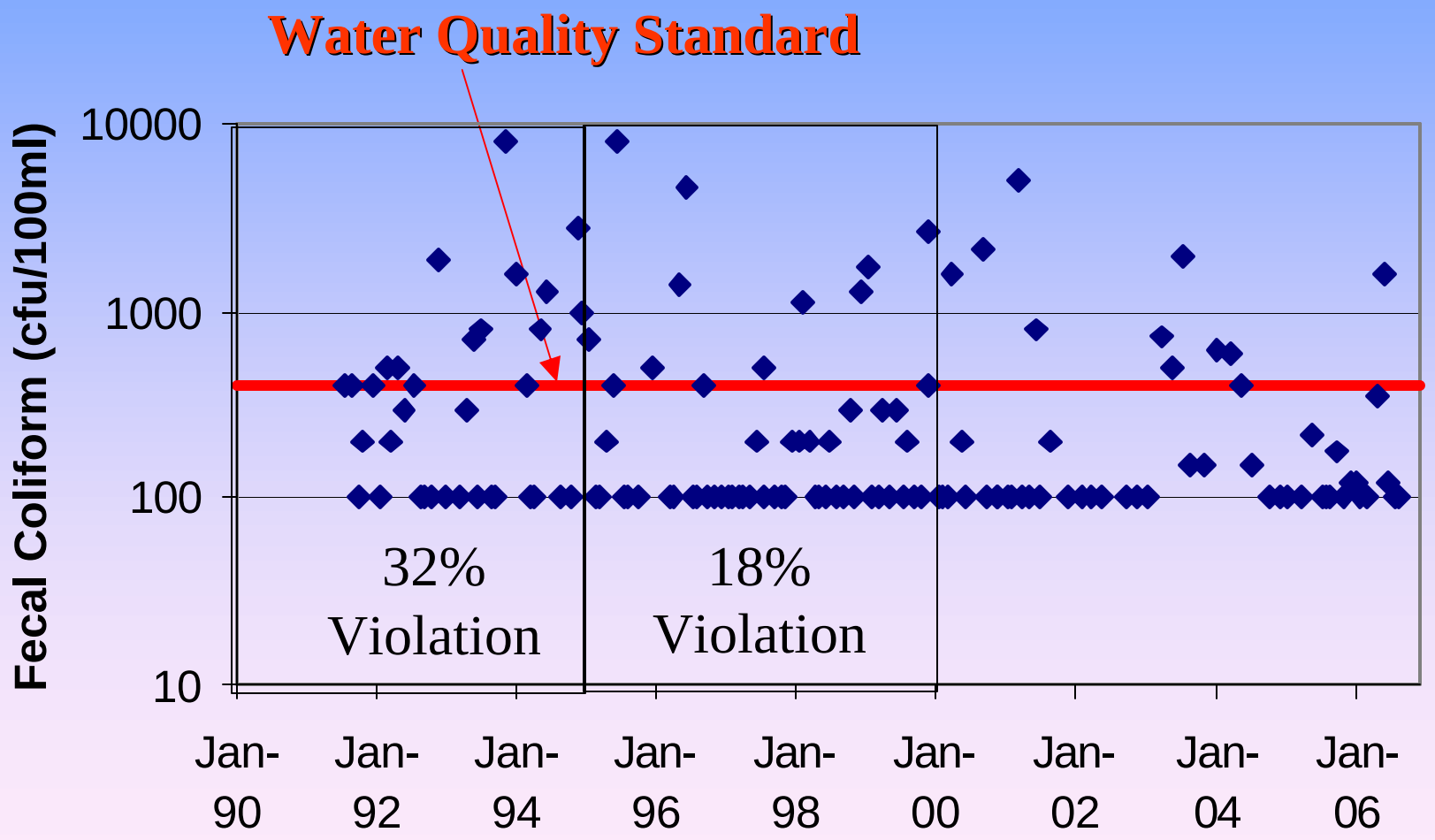

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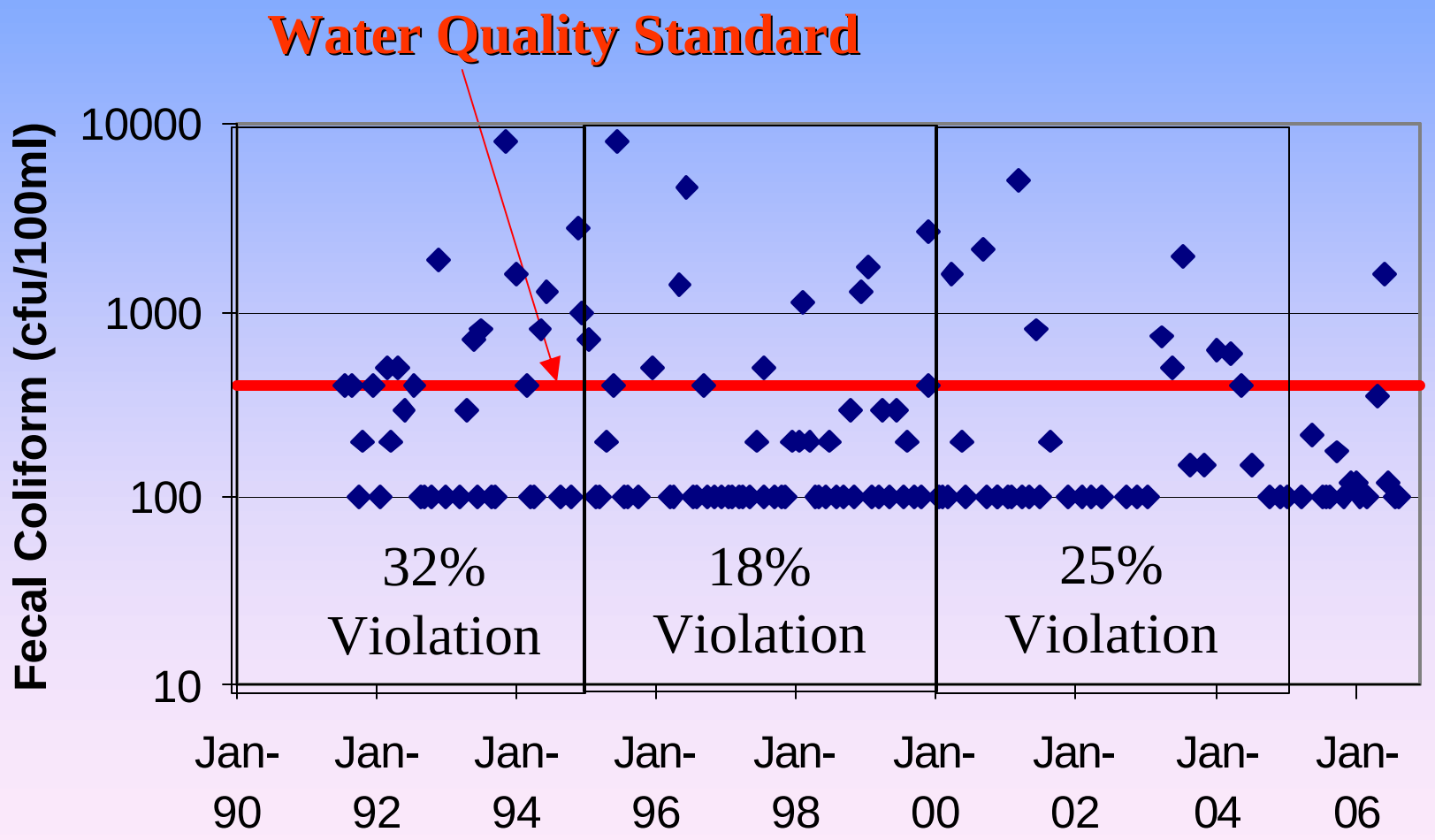

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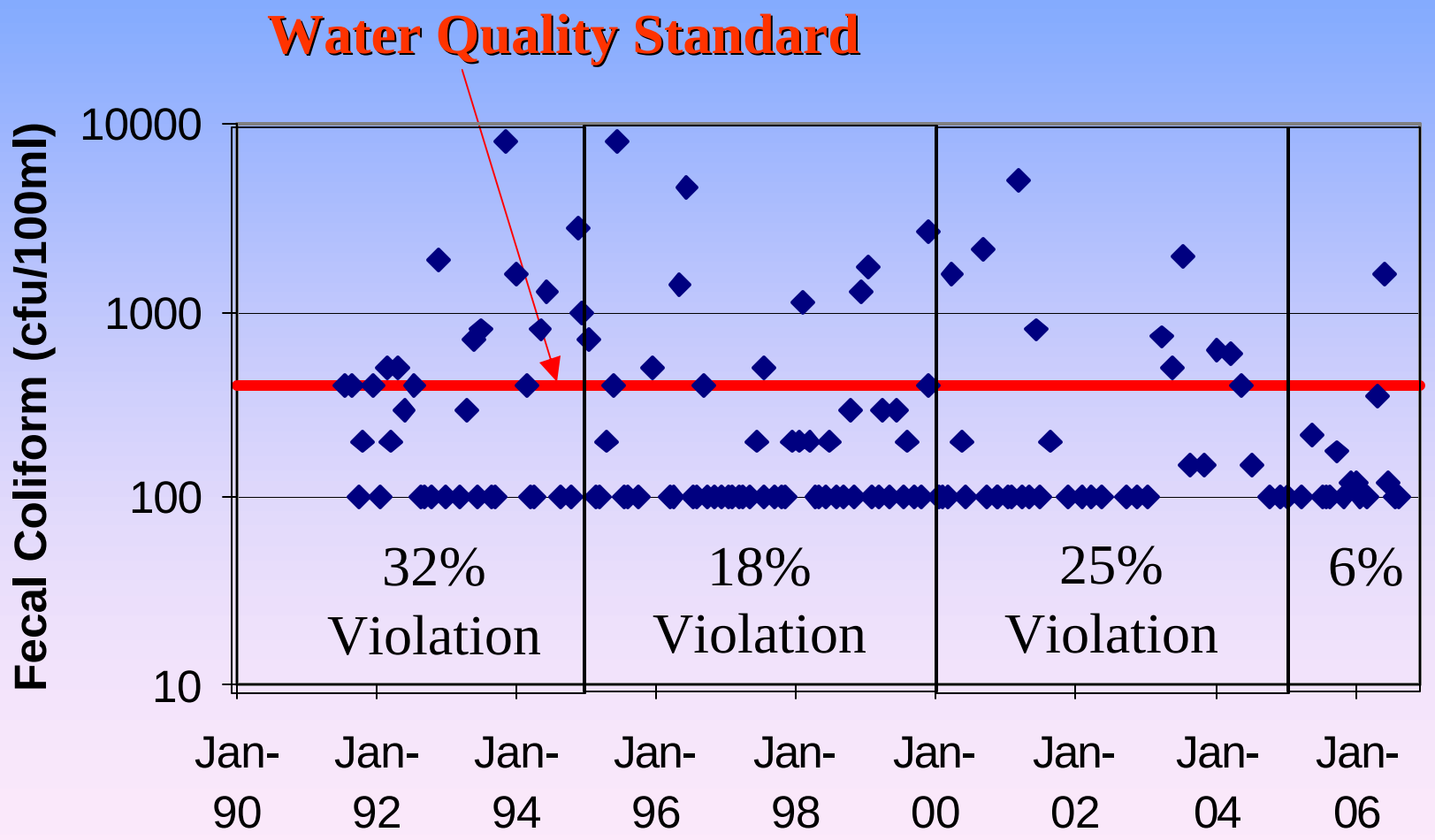


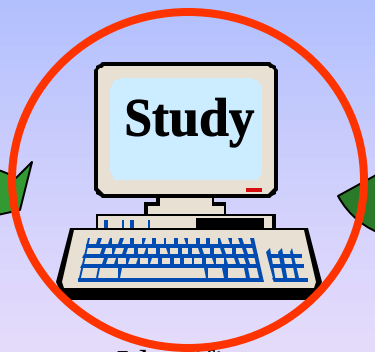
What Happens When a Stream is Impaired?

- The State begins a formal process to clean up that water body (a TMDL)

Total
Maximum
Daily
Load

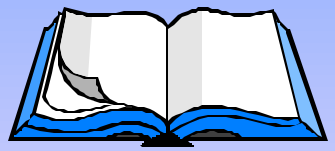
We are here

Study



- Identifies sources of pollution
- Calculates amounts from each source
- Estimates necessary pollutant reductions

Implementation Plan

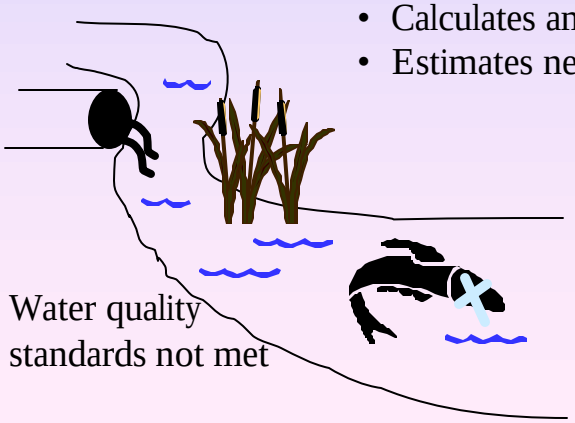


- Identifies permit controls or best management practices needed to make necessary pollutant reductions

Implementation

Monitoring

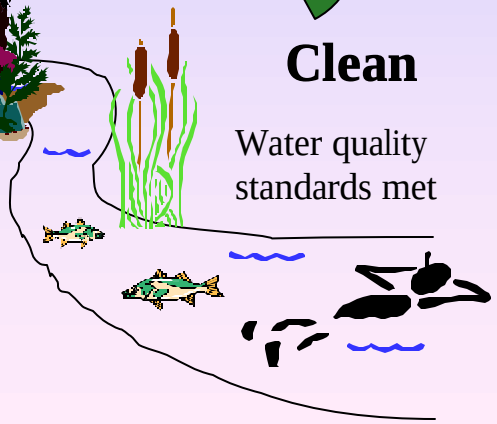
Polluted



Water quality standards not met

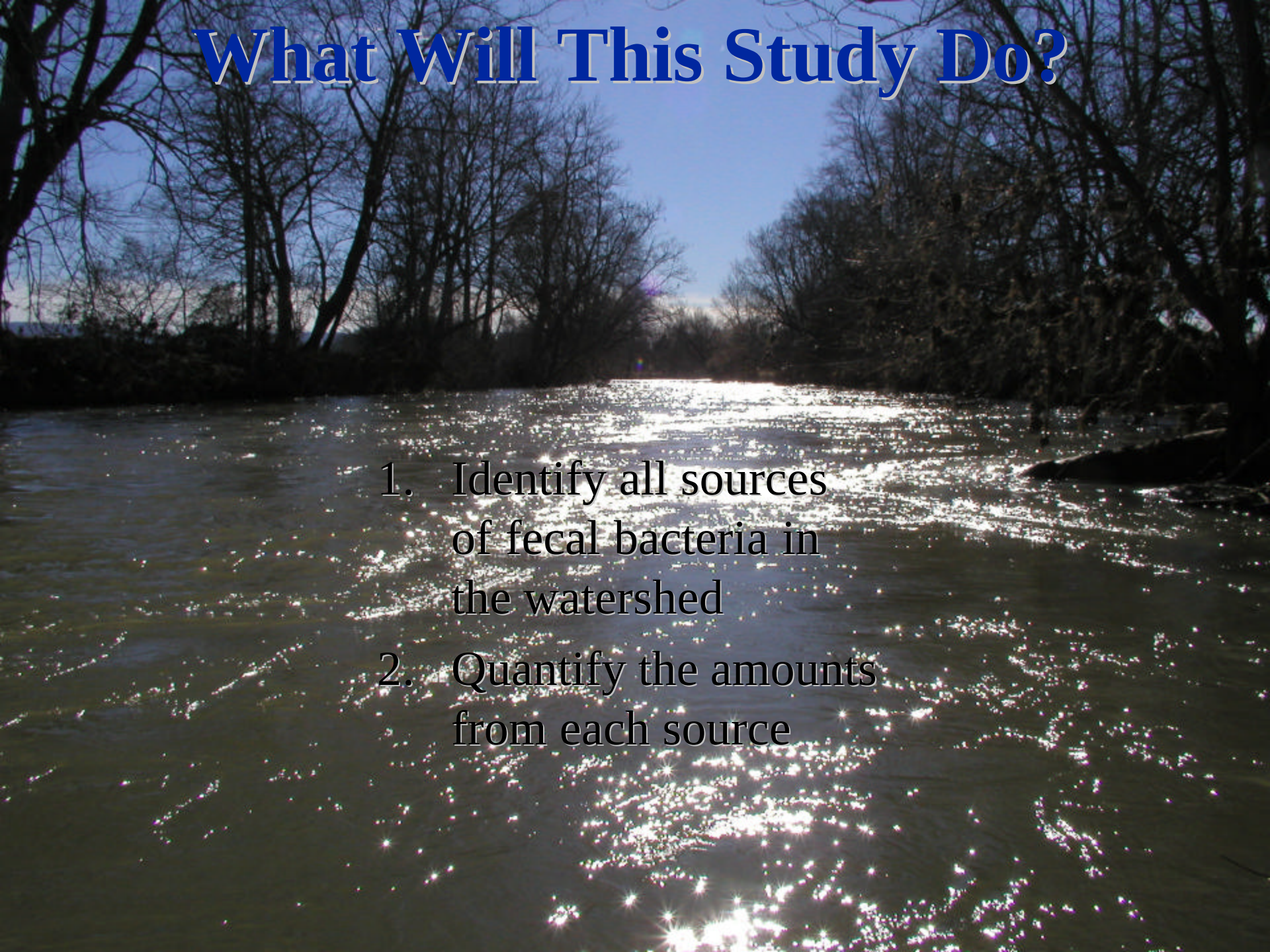
Clean

Water quality standards met



The Process

What Will This Study Do?



1. Identify all sources of fecal bacteria in the watershed
2. Quantify the amounts from each source

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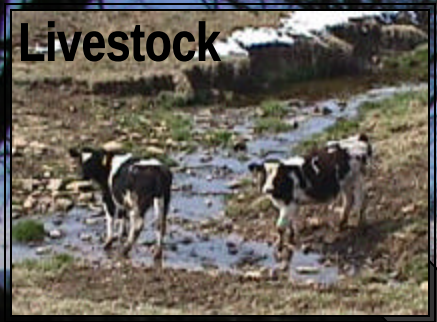

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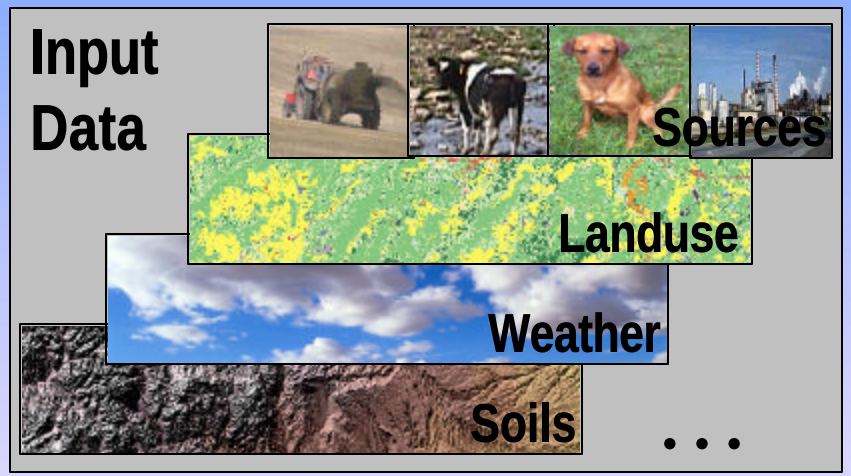
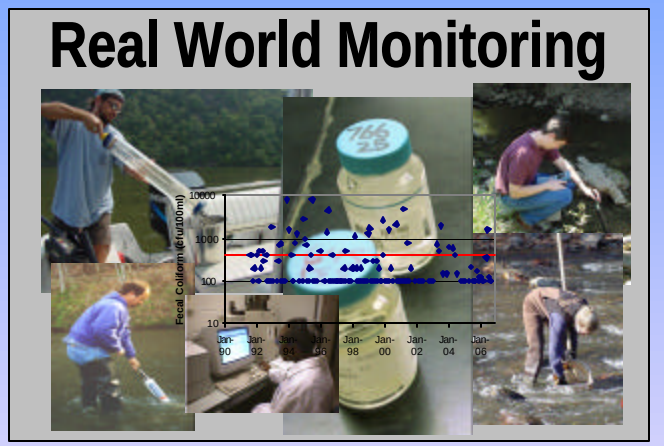
2. Quantify the amounts from each source

What Will This Study Do?

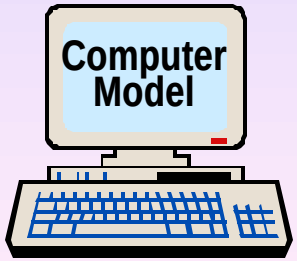
3. Develop a computer model to simulate instream flows and bacteria concentrations

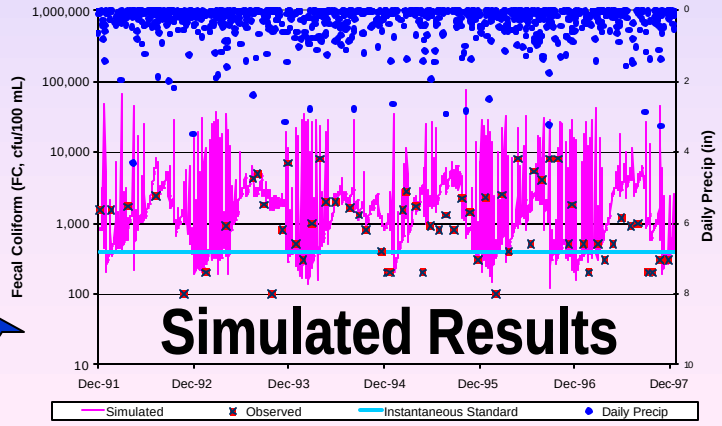




Calibration

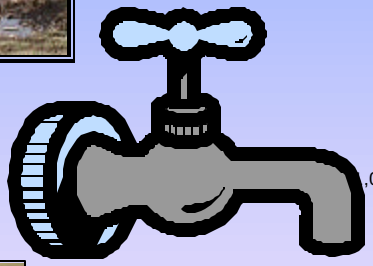
Model Development

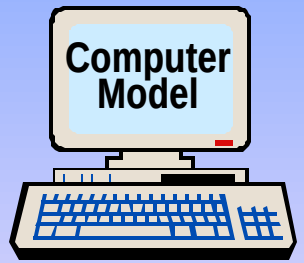


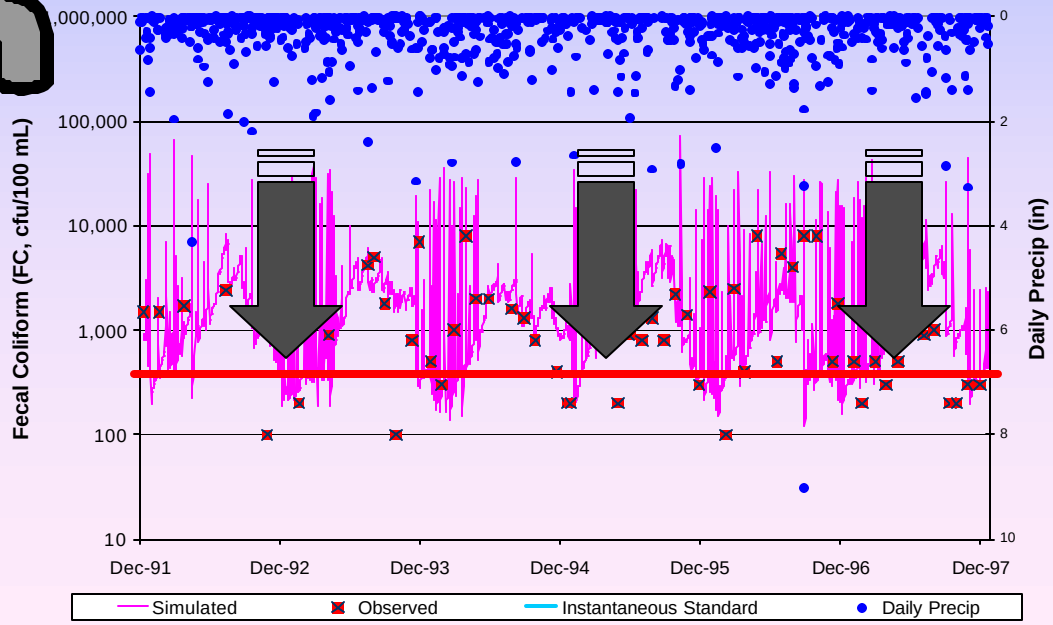


What Will This Study Do?

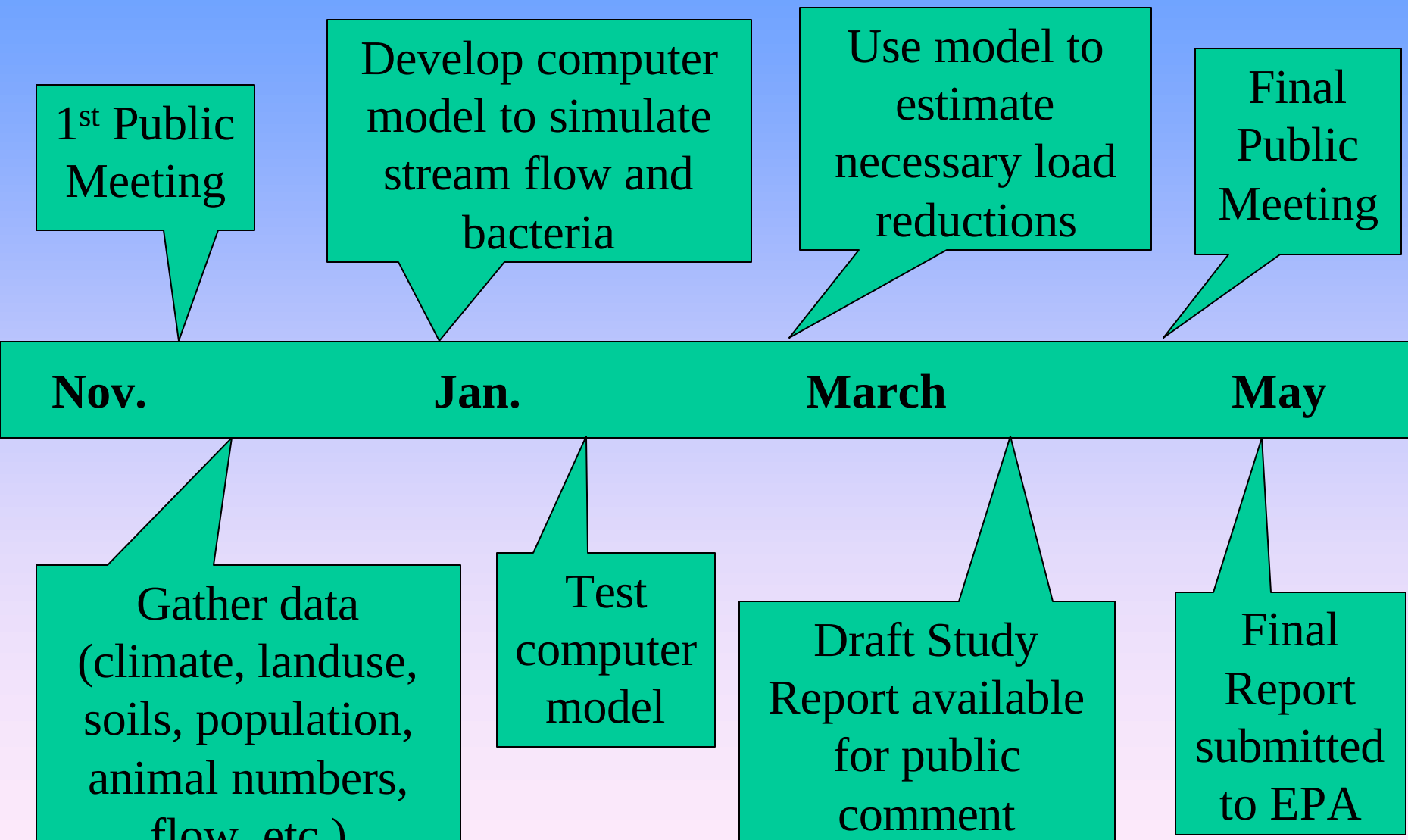
4. **Estimate pollutant reductions from sources necessary to meet water quality standards**







What is the Study Timeline?



What Can You Do to Help?

- Participate on a Local Steering Committee
  - Group of local citizens, landowners, organizations, and government entities that will provide input, review and assistance to DEQ during the study
  - Goal - make sure technical aspects of the study are accurate as well as acceptable to the community

Sign up tonight

What Else Can You Do to Help?

- Begin implementing best management practices (BMPs) that improve water quality

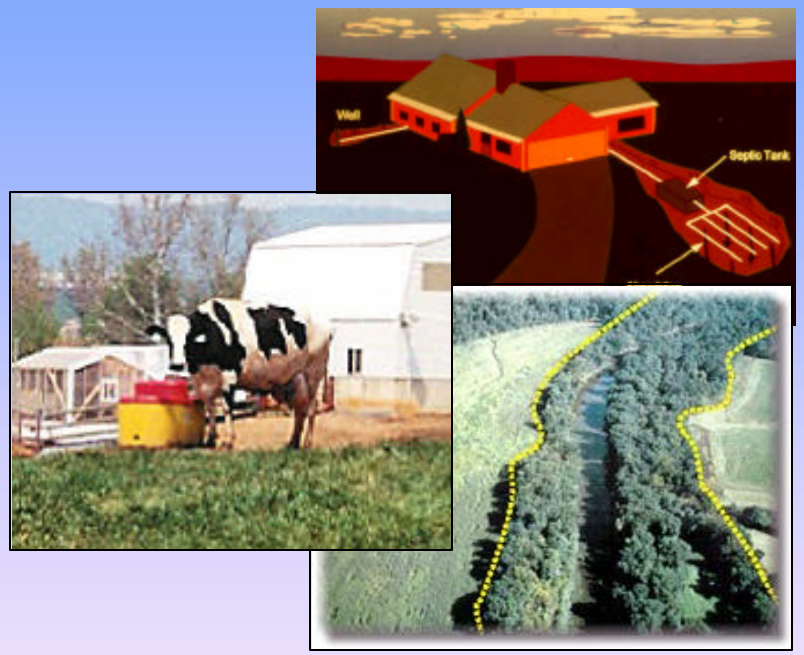
Urban Areas

- riparian buffers
- use fertilizers and pesticides sparingly
- never pour hazardous materials in storm drains
- disconnect roof drains from sanitary or storm sewers
- pick up pet wastes

What Else Can You Do to Help?

Rural/Agricultural Areas

- riparian buffers
- septic pump-outs/repairs
- stream exclusion fencing
- alternative water systems
- rotational grazing
- nutrient management

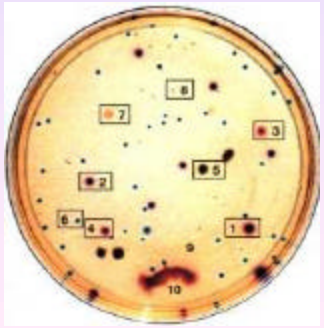


- Contact local S&WCD about programs and funding for BMPs at (434)975-0224

DEQ

Recap

- Bacterial impairments in the Hardware River and North Fork Hardware River
- DEQ is beginning a Water Quality Study to investigate these impairments
- Your help is welcomed on a local steering committee
- Study will be followed up by a plan to implement voluntary improvements in the watershed with assistance from State and Federal funds



Questions?

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- Comment period for this public meeting ends December 30, 2006